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Filed: December 26, 2001

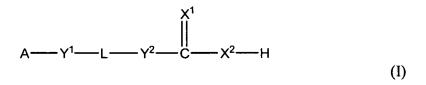
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## **Amendments to the Claims:**

This listing of claims replaces all prior versions and listings of claims in the application:

## **Listing of Claims:**

## 1. (Currently Amended) A compound of formula (I):



wherein

A is a cyclic moiety selected from the group consisting of  $C_{3-14}$  cycloalkyl, 3-14 membered heterocycloalkyl,  $C_{4-14}$  cycloalkenyl, 3-14 membered heterocycloalkenyl, aryl, heteroaryl; the cyclic moiety being optionally substituted with 1-3 substituents, each of which is independently selected from the group consisting of alkyl, alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, amino, alkylcarbonyloxy, alkyloxycarbonyl, alkylcarbonyl, alkylsulfonylamino, aminosulfonyl, and alkylsulfonyl;

each of X and X2, independently, is O or S;

Y<sup>1</sup> is -CH<sub>2</sub>-, -O-, -S-, -N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)-O-, -O-C(O)-N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)N(R<sup>b</sup>)-, -O-C(O)-O-, or a bond; each of R<sup>a</sup> and R<sup>b</sup>, independently being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

 $Y^2$  is  $CH_2$  or a bond;

L is a straight  $C_{3-12}$  hydrocarbon chain optionally containing at least one double bond <u>adjacent to Y¹ or Y²</u>, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, hydroxyl, halo, amino, nitro, cyano,  $C_{3-5}$  cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkylcarbonyloxy,  $C_{1-4}$  alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N(R°)-, -N(R°)-C(O)-O-, -O-C(O)-(R°)-, -N(R°)-C(O)-N(R<sup>d</sup>)-, or -O-C(O)-O-; each of R° and R<sup>d</sup>, independently, being hydrogen, alkyl, alkenyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl; provided that when L contains two or more double bonds, the double bonds are not adjacent to each other; that when L contains

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three double bonds, said hydrocarbon chain is further substituted with  $C_{2.4}$  alkenyl,  $C_{2.4}$  alkynyl,  $C_{1.4}$  alkoxy, hydroxyl, halo, amino, nitro, cyano,  $C_{3.5}$  cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1.4}$  alkylcarbonyloxy,  $C_{1.4}$  alkylcarbonyl, or formyl; and further provided that when L is  $C_4$  and contains one triple bond and one double bond or two triple bonds contains zero double bonds, one double bond, or two conjugated double bonds and A is  $C_{3.14}$  cycloalkyl, substituted phenyl or unsubstituted aryl,  $Y^1$  is not a bond or  $CH_2$  and  $Y^2$  is not a bond or  $CH_2$ ;

or a salt thereof.

- 2. (Original) The compound of claim 1, wherein X<sup>1</sup> is O.
- 3. (Original) The compound of claim 1, wherein  $X^2$  is O.
- 4. (Original) The compound of claim 1, where each of  $X^1$  and  $X^2$  is O.
- 5. (Currently Amended) The compound of claim 1, wherein each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2-</sub>, -O-, -N(R<sup>a</sup>)-, or a bond.
- 6. (Canceled)
- 7. (**Previously Presented**) The compound of claim 1, wherein L is an unsaturated  $C_{4-8}$  hydrocarbon containing at least one double bond and no triple bond, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), or -N( $C_{1-2}$  alkyl)<sub>2</sub>, or -N( $C_{1-2}$  alkyl)<sub>2</sub>.
- 8. (Original) The compound of claim 7, wherein the double bond is in trans configuration.
- 9-11. (Canceled)
- 12. (Original) The compound of claim 1, wherein A is phenyl, naphthyl, indanyl, or

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tetrahydronaphthyl.

13. (Previously Presented) The compound of claim 1, wherein A is phenyl optionally substituted with 1-3 substituents each of which is independently selected from the group consisting of alkyl, alkenyl, hydroxyl, hydroxylalkyl, halo, haloalkyl, and amino.

## 14-15. (Canceled)

- 16. (Previously Presented) The compound of claim 13, wherein L is an unsaturated C<sub>4-8</sub> hydrocarbon chain containing only double bonds in trans configuration, said unsaturated hydrocarbon chain being optionally substituted with C<sub>1,2</sub> alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1,2}$  alkyl), or -N( $C_{1,2}$  alkyl)<sub>2</sub>.
- 17. (Currently Amended) The compound of claim 16, wherein X<sup>1</sup> is O; X<sup>2</sup> is O; and each of Y<sup>1</sup> and Y<sup>2</sup>, independently, is -CH<sub>2</sub>-, -O-, -N(R<sup>a</sup>)-, or a bond.

### 18-21. (Canceled)

22. (Currently Amended) A compound of formula (I):

$$A - Y^1 - L - Y^2 - C - X^2 - H$$
 (I)

(I)

wherein

A is a cyclic moiety selected from the group consisting of aryl and heteroaryl; the cyclic moiety being optionally substituted with alkyl, alkenyl, alkynyl, hydroxylalkyl, or amino; each of  $X^1$  and  $X^2$ , independently, is O or S;

Y<sup>2</sup> is CH<sub>2</sub> or a bond;

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L is a straight  $C_{3-12}$  hydrocarbon chain optionally containing at least one double bond <u>adjacent to Y<sup>1</sup> or Y<sup>2</sup></u>, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, or amino, and further optionally interrupted by -O- or -N(R°)-, where R° is hydrogen, alkyl, hydroxylalky, or haloalkyl; provided that when L contains two or more double bonds, the double bonds are not adjacent to each other; that when L contains three double bonds, said hydrocarbon chain is substituted with  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, or amino; and further provided that when L is  $C_4$  and contains one triple bond and one double bonds and further bonds contains zero double bonds, one double bond, or two conjugated double bonds and A is  $C_{3-14}$  eyeloalkyl,  $C_{1-4}$  alkyl phenyl,  $C_{1-4}$  alkoxy phenyl, or unsubstituted aryl phenyl, Y<sup>1</sup> is not a bond or CH<sub>2</sub> and Y<sup>2</sup> is not a bond or CH<sub>2</sub>;

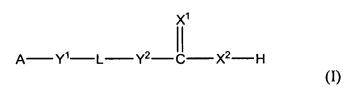
# 23-24. (Canceled)

25. (Previously Presented) The compound of claim 22, wherein L is an unsaturated  $C_{4-8}$  hydrocarbon chain containing only double bonds in trans configuration, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), or -N( $C_{1-2}$  alkyl)<sub>2</sub>.

26. (Currently Amended) The compound of claim 25, where in  $X^1$  is O;  $X^2$  is O; and each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -O-, -N( $\mathbb{R}^a$ )-, or a bond.

#### 27-79. (Canceled)

80. (Currently Amended) A pharmaceutical composition, comprising compound of formula (I):



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#### wherein

A is a cyclic moiety selected from the group consisting of C<sub>3-14</sub> cycloalkyl, 3-14 membered heterocycloalkyl, C<sub>4-14</sub> cycloalkenyl, 3-14 membered heterocycloalkenyl, aryl, and heteroaryl; the cyclic moiety being optionally substituted with 1-3 substituents, each of which is independently selected from the group consisting of alkyl, alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, amino, alkylcarbonyloxy, alkyloxycarbonyl, alkylcarbonyl, alkylsulfonylamino, aminosulfonyl, and alkylsulfonyl;

each of  $X^1$  and  $X^2$ , independently, is O or S;

 $Y^{l}$  is -CH<sub>2</sub>-, -O-, -S-, -N( $R^{a}$ )-, -N( $R^{a}$ )-C(O)-O-, -O-C(O)-N( $R^{a}$ )-, -N( $R^{a}$ )-C(O)-N( $R^{b}$ )-, -O-C(O)-O-, or a bond; each of  $R^{a}$  and  $R^{b}$  independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

Y<sup>2</sup> is CH<sub>2</sub> or a bond;

L is a straight  $C_{5-12}$  hydrocarbon chain containing at least one double bond <u>adjacent to Y<sup>1</sup> or Y<sup>2</sup></u>, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, hydroxyl, halo, amino, nitro, cyano,  $C_{3-5}$  cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkylcarbonyloxy,  $C_{1-4}$  alkyloxycarbonyl,  $C_{1-4}$  alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-C(O)-O-, -O-C(O)-N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-C(O)-N(R<sup>d</sup>)-, or -O-C(O)-O-; each of R<sup>c</sup> and R<sup>d</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

or a salt thereof; and

a pharmaceutically acceptable carrier.

- 81. (Previously Presented) The pharmaceutical composition of claim 80, wherein  $X^1$  is O.
- 82. (Previously Presented) The pharmaceutical composition of claim 80, wherein  $X^2$  is O.
- 83. (Previously Presented) The pharmaceutical composition of claim 80, where each of  $X^1$  and  $X^2$  is O.

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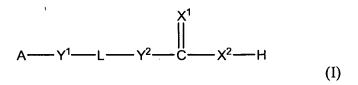
84. (Currently Amended) The pharmaceutical composition of claim 80, wherein each of  $Y^1$  and  $Y^2$ , independently, is  $-CH_2$ , -O,  $-N(R^a)$ , or a bond.

- 85. (Previously Presented) The pharmaceutical composition of claim 80, wherein L is an unsaturated  $C_{5-8}$  hydrocarbon chain containing at least one double bond and no triple bond, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), or -N( $C_{1-2}$ alkyl)<sub>2</sub>, or -N( $C_{1-2}$ alkyl)<sub>2</sub>.
- 86. (Previously Presented) The pharmaceutical composition of claim 85, wherein the double bond is in trans configuration.
- 87. (Previously Presented) The pharmaceutical composition of claim 80 wherein A is phenyl, naphthyl, indanyl, or tetrahydronaphthyl.
- 88. (Previously Presented) The pharmaceutical composition of claim 80, wherein A is phenyl optionally substituted with 1-3 substituents, each of which is independently selected from the group consisting of alkyl, alkenyl, hydroxyl, hydroxylalkyl, halo, haloalkyl and amino.
- 89. (Previously Presented) The pharmaceutical composition of claim 80, wherein L is an unsaturated  $C_{5.8}$  hydrocarbon chain containing only double bonds in trans configuration, said unsaturated hydrocarbon chain being optionally substituted with  $C_{1.2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1.2}$  alkyl), or -N( $C_{1.2}$  alkyl)<sub>2</sub>.
- 90. (Currently Amended) The pharmaceutical composition of claim 89, wherein  $X^1$  is O;  $X^2$  is O; and each of  $Y^1$  and  $Y^2$ , independently, is -CH<sub>2</sub>-, -O-, -N( $\mathbb{R}^a$ )-, or a bond.
- 91. (Currently Amended) A compound of formula (I):

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wherein

A is a cyclic moiety selected from the group consisting of  $C_{3-14}$  cycloalkyl, 3-14 membered heterocycloalkyl,  $C_{4-14}$  cycloalkenyl, 3-14 membered heterocycloalkenyl, aryl, and heteroaryl; the cyclic moiety being optionally substituted with alkyl, alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, amino, alkylcarbonyloxy, alkyloxycarbonyl, alkylcarbonyl, alkylsulfonylamino, aminosulfonyl, or alkylsulfonyl;

each of  $X^1$  and  $X^2$ , independently, is O or S;

$$Y^{1}$$
 is -CH<sub>2</sub>-, -S-, -N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)-O-, -O-C(O)-N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)-N(R<sup>b</sup>)-,

-O-C(O)-O-, or a bond; each of R<sup>a</sup> and R<sup>b</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

L is a straight  $C_{3-6}$  hydrocarbon chain containing at least one double bond <u>adjacent to Y<sup>1</sup> or Y<sup>2</sup></u>, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being substituted with  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, amino, nitro,  $C_{3-5}$  cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkylcarbonyloxy,  $C_{1-4}$  alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-C(O)-N(R<sup>d</sup>)-, or -O-C(O)-O-; each of R<sup>c</sup> and R<sup>d</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

or a salt thereof.

- 92. (Previously Presented) The compound of claim 91, wherein X<sup>1</sup> is O.
- 93. (Previously Presented) The compound of claim 91, wherein  $X^2$  is O.
- 94. (Previously Presented) The compound of claim 91, wherein each of  $X^1$  and  $X^2$  is O.

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# 95. (Canceled)

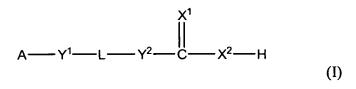
96. (Previously Presented) The compound of claim 91, wherein L is an unsaturated  $C_{4-6}$  hydrocarbon chain containing at least one double bond and no triple bond, said unsaturated hydrocarbon chain being substituted with  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>,

 $-NH(C_{1-2} \text{ alkyl}), -N(C_{1-2} \text{ alkyl})_2, -N(C_{1-2} \text{ alkyl})_2, \text{ halo, or monocyclic aryl.}$ 

97. (Previously presented) The compound of claim 96, wherein said double bond is in trans configuration.

### 98. (Canceled)

- 99. (Previously presented) The compound of claim 91, wherein A is phenyl optionally substituted with alkyl, alkenyl, hydroxyl, hydroxylalkyl, halo, haloalkyl, or amino.
- 100. (**Previously Presented**) The compound of claim 91, wherein L is an unsaturated  $C_{5-6}$  hydrocarbon chain containing double bonds only in trans configuration, said unsaturated hydrocarbon chain being substituted with  $C_{1-2}$  alkoxy, hydroxyl, -NH<sub>2</sub>, -NH( $C_{1-2}$  alkyl), -N( $C_{1-2}$  alkyl)<sub>2</sub>, halo, or monocyclic aryl.
- 101. (Currently Amended) The compound of claim 100, wherein  $X^1$  is O;  $X^2$  is O; and each of  $Y^1$  and  $Y^2$ , independently, is  $-CH_2$ -,  $-N(R^a)$ -, or a bond.
- 102. (Currently Amended) A compound of formula (I):



wherein

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A is a cyclic moiety selected from the group consisting of  $C_{3^{-}14}$  cycloalkyl, 3-14 membered heterocycloalkyl,  $C_{4^{-}14}$  cycloalkenyl, 3-14 membered heterocycloalkenyl, aryl, a heteroaryl; the cyclic moiety being optionally substituted with alkyl, alkenyl, alkynyl, alkoxy, hydroxyl, hydroxylalkyl, halo, haloalkyl, amino, alkylcarbonyloxy, alkyloxycarbonyl, alkylcarbonyl, alkylsulfonylamino, aminosulfonyl, or alkylsulfonyl;

each of X<sup>1</sup> and X<sup>2</sup>, independently, is O or S;

 $Y^1$  is  $-CH_2$ -, -O-, -S-,  $-N(R^a)$ -,  $-N(R^a)$ -C(O)-O-, -O-C(O)- $N(R^a)$ -,  $-N(R^a)$ -C(O)- $N(R^b)$ -, -O-C(O)-O-, or a bond; each of  $R^a$  and  $R^b$ , independently being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

Y<sup>2</sup> is CH<sub>2</sub> or a bond;

L is a straight  $C_{3-7}$  hydrocarbon chain optionally containing at least one double bond <u>adjacent to Y¹ or Y²</u>, least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being optionally substituted with  $C_{1-4}$ alkyl,  $C_{2-4}$ alkenyl,  $C_{2-4}$ alkynyl,  $C_{1-4}$ alkoxy, hydroxyl, halo, amino, nitro, cyano,  $C_{3-5}$ cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkylcarbonyloxy,  $C_{1-4}$  alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N(R°)-, -N(R°)-C(O)-O-, -O-C(O)-N(R°)-, or -O-C(O)-O-; each of R° and R<sup>d</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl; provided that when L contains two or more double bonds, the double bonds are not adjacent to each other; that when L contains three double bonds, said hydrocarbon chain is further substituted with  $C_{2-4}$ alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$ alkoxy, hydroxyl, halo, amino, nitro, cyano,  $C_{3-5}$ cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkylcarbonyloxy,  $C_{1-4}$ alkylcarbonyl, or formyl; and further provided that when L is  $C_4$  and contains one triple bond and one double bonds or two triple bonds contains zero double bonds, one double bond, or two conjugated double bonds and A is  $C_{3-14}$  cycloalkyl, substituted phenyl or unsubstituted aryl, Y¹ is not a bond or  $CH_2$ ; and Y² is not a bond or  $CH_2$ ;

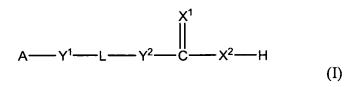
or a salt thereof.

## 103. (Currently Amended) A compound of formula (I):

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wherein

A is phenyl, naphthyl, indanyl, or tetrahydronaphthyl;

each of  $X^1$  and  $X^2$ , independently, is O or S;

Y<sup>1</sup> is -CH<sub>2</sub>-, -S-, -N(R<sup>a</sup>)-C(O)-O-, -O-C(O)-N(R<sup>a</sup>)-, -N(R<sup>a</sup>)-C(O)-N(R<sup>b</sup>)-, -O-C(O)-O-, or a bond; each of R<sup>a</sup> and R<sup>b</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl;

Y<sup>2</sup> is -CH<sub>2</sub>- or a bond;

L is a straight  $C_{3-6}$  hydrocarbon chain containing at least one double bond <u>adjacent to Y<sup>1</sup> or Y<sup>2</sup></u>, at least one triple bond, or at least one double bond and one triple bond; said hydrocarbon chain being substituted with  $C_{2-4}$  alkenyl,  $C_{2-4}$  alkynyl,  $C_{1-4}$  alkoxy, amino, nitro, cyano,  $C_{3-5}$  cycloalkyl, 3-5 membered heterocycloalkyl, monocyclic aryl, 5-6 membered heteroaryl,  $C_{1-4}$  alkylcarbonyloxy,  $C_{1-4}$  alkyloxycarbonyl,  $C_{1-4}$  alkylcarbonyl, or formyl; and further being optionally interrupted by -O-, -N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-C(O)-O-, -O-C(O)-N(R<sup>c</sup>)-, -N(R<sup>c</sup>)-C(O)-N(R<sup>d</sup>)-, or -O-C(O)-O-; each of R<sup>c</sup> and R<sup>d</sup>, independently, being hydrogen, alkyl, alkenyl, alkynyl, alkoxy, hydroxylalkyl, hydroxyl, or haloalkyl; or a salt thereof.